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(54) FLOATING PLATFORM TO OBTAIN ELECTRIC POWER FROM SEA WAVES

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(57) ABSTRACT

Floating platform fixed to sea bottom, provided with a lathe in that an anchorage cable is rolled by a recoverable spring, they allow to transform the kinetic energy of the waves in electricity by connecting the axis of lathe to electricity generators, electricity generators to rectifiers circuits, and rectifiers circuits to electric accumulators.

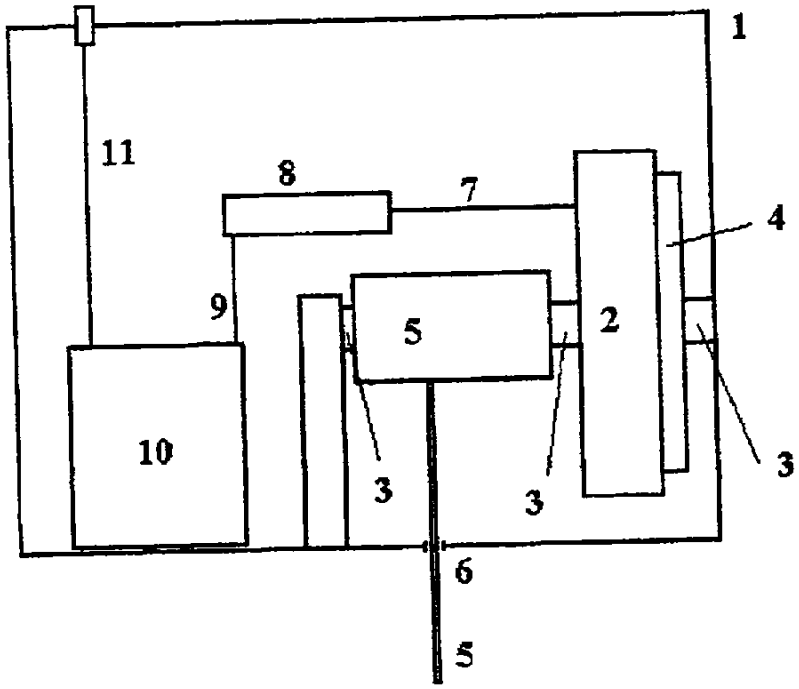
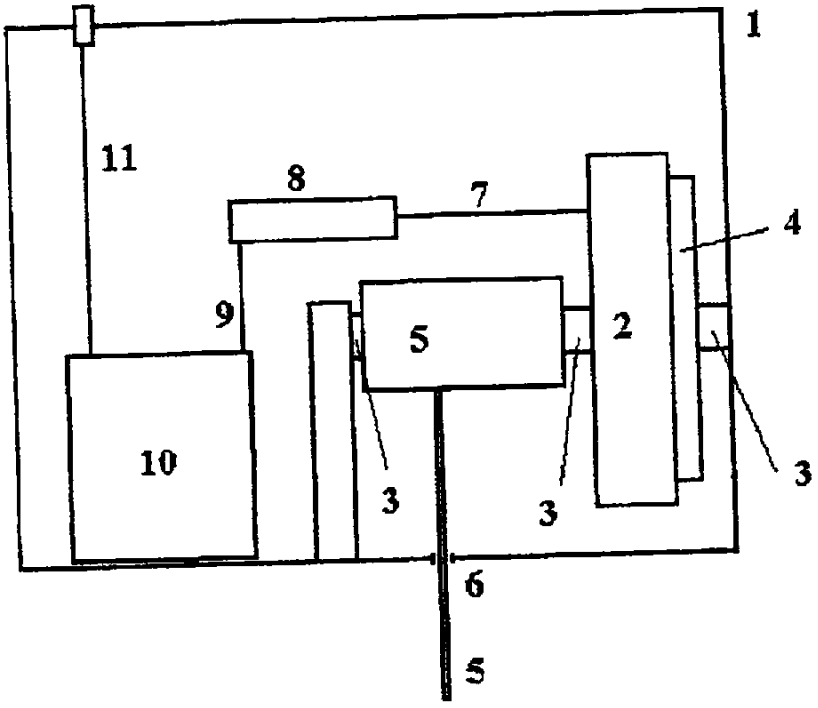


Fig. 1



FLOATING PLATFORM TO OBTAIN ELECTRIC POWER FROM SEA WAVES

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] Spanish patent application P200100640 dated Mar. 16, 2001 is priority.

[0002] Patent W9914489, priority date Sep. 18, 1997: a buoy, located near coast, it picks up wave movements being transmitted said movements through levers.

[0003] The present invention, by using floating platforms, takes advantage of kinetic energy of the sea. To pick up kinetic energy they are provided lathes and cables, by generating circular movements that are transmitted to electric generators (essentially of direct current).

BRIEF SUMMARY OF THE INVENTION

[0004] A floating platform located on sea surface it has many movements, tides, currents, waves, winds, etc. Oscillatory movements (waves) can be transformed in circular movements by providing a fixed benchmark, by example, by means of an anchorage from platform to sea bottom.

[0005] An appropriate system to pick up this oscillatory movements is by connecting anchorage on sea bottom to a cable. This cable rolls/unrolls up an axis with a helical recoverable spring. The axis that picks up the movement can be in the platform or on sea bottom.

[0006] The obtained circular movements, applied on axis, they can become electric power easily.

[0007] It is not necessary that these circular movements are always in the same sense if the appropriate electric circuits are provided. So, a circular movement applied on a direct current generator produces an alternating current, and this AC, through a rectifier, it can load an accumulator.

[0008] It is possible to change the anchorage to bottom of the water by anchorage to a weight that rests on bottom of the water, being the weight sufficiently big.

[0009] Ending, the system can be adapted to use on deep bottoms, by example on high seas, by changing anchorage to bottom of water by a hanging weight, having the cable a certain length and elasticity.

BRIEF DESCRIPTION OF THE FIGURES

[0010] **FIG. 1**. Platform—buoy to obtain electric power.

DETAILED DESCRIPTION OF THE INVENTION

[0011] It is schematized in **FIG. 1**

[0012] Floating platform is formed by a buoy (**1**).

[0013] Into the buoy there is a lathe (**3**), on this lathe rolls up a cable (**5**) through a hole (**6**). Cable is fixed to sea bottom by a ring (not represented), or by a big weight, so that it cannot be moved by movements of the platform. Cable length is the biggest height that can reach the platform, including action of waves, staying stretched in the valley of a wave by effect of a helical spring (**4**), by acting on the lathe regarding the buoy body. The axis of lathe is connected to an electricity generator (**2**) of direct current, this generator is connected to a rectifier (**8**) through (**7**), and this rectifier is connected through (**7**) to an accumulator battery (**10**).

[0014] The buoy also is provided with a security anchorage (device not represented).

[0015] With surfs, platform raises and goes down, fixation cable (**5**) is rolled and unrolled up on lathe (**3**), inducing a sway movement on said lathe. By this sway movement, the direct current generator (**2**) generates an alternating current, this current, rectified, can be stored in a battery of electric accumulators.

[0016] OTHER EMBODIMENTS OF THE INVENTION

[0017] The buoy must be shaped as a inverted U, placing between the sticks of the U the axis of lathe, with what, the cable rolls/unrolls up buoy externally, avoiding the hole (**6**).

[0018] Alternatives to electronic circuits

[0019] Instead to use rectifiers, for each axis can be provided two direct current generators, one in each axis ends, with a pawl mechanism that allows each generator rotate in a single sense, opposed to generator of the other end, being connected each generator directly to accumulators.

[0020] Special anchorage shapes

[0021] It is possible invention use in deep waters, by hanging a weight from cable, having the cable a suitable length. Inertia weight works as an anchorage.

[0022] Also a platform can be anchored to a weight. The weight can have some mechanisms of the invention, unloading the platform.

[0023] INDUSTRIAL APPLICATION

[0024] According with previous paragraphs it is possible to take advantage from sea surfaces.

[0025] In addition, if batteries of platforms with developed capacity to capture energy from waves, are fixed near a coast, they can be used like breakwater, because the platforms absorb a part of kinetic energy of waves.

[0026] A frequent special use can be when the captured energy is used in the own platform, like in signaling buoys.

I claim for:

1. Method to obtain electric power by using kinetic energy of sea waves characterized in that a floating platform is linked to a point placed at the sea bottom by an anchorage cable, p1 platform is moved with the oscillatory movement of the sea, being movement picked up by anchorage cable by rolling/unrolling up on an axis, like in a lathe, with a recoverable helical spring, being axis on the platform or on the sea bottom,

movements picked up by axis of lathe feed direct current generators, and generators feed rectifiers,

electric direct current from rectifiers feed accumulator.

2. Method to obtain electric power by using kinetic energy of sea waves according to claim 1, characterized in that joint to sea bottom is changed by a connection to a weight resting on the bottom.

3. Method to obtain electric power by using kinetic energy sea waves according to claims 1 and 2, characterized in that

the anchorage weight is formed by the mechanisms of generation, accumulation and transformation of electric power, properly isolated.

4. Method to obtain electric by using kinetic energy of sea waves according to claim 1, characterized in that the joint to a fixed point is changed by the union to a weight hanging from the cable, having the cable a certain elasticity.

5. Floating platform to obtain electric power by using kinetic energy of sea waves characterized in that:

functioning anchorage to sea bottom,

functioning anchorage is connected to a fastening axis, by rolling/unrolling up directly on said axis,

length of functioning cable it is the maximum from sea bottom to sea top, including height of waves,

fastening axis has a recoverable helical spring to rolling up remaining cable,

fastening axis is connected to a direct current generator,

direct current generators are connected to rectifiers,

security anchorage to sea bottom, coast or another floating platform.

6. Floating platform to obtain electric power by using kinetic energy of sea waves, according to claim 5, characterized in that fastening axis, their associate electric generator and accumulators, they are on sea bottom, and cable is fixed directly to the floating platform.

7. Floating platform to obtain electric power by using kinetic energy sea waves, according to claims 5 and 6, characterized to be a buoy, having the devices into its body, entering functioning cable through a hole.

8. Floating platform to obtain electric power by using kinetic energy of sea waves, according to claims 5, to 7, without hole for functioning cable, characterized to be a buoy, shaped as an invested U, having fastening axis between the the two sticks of the invested U, and the rest of devices inside the buoy, rolling/unrolling up functioning cable externally to the buoy.

9. Buoy according to claims 7 and 8, characterized to be for marine signaling, by auto-feeding of electricity directly from electric accumulators.

10. Floating platform to obtain electric power by using kinetic energy of sea waves, according to claims 5 to 9, characterized in that functioning axis has a direct current generator in each one of its ends, with a pawl device to rotate each generator in a single sense, opposed to the generator of the other end, being connected each generator directly to accumulators.

11. Floating platform battery according to claims 5 to 10, specially oriented to the intensive exploitation of a coast, serving also as cushioning of waves, characterized in having several floating platforms, in one or several lines, with parallel disposition regarding the coast, to a certain distance of the sea shore.

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